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Abstract:

The dynamics model of *Alcaligenes faecalis* NR was combined with the activated sludge model No.1 to guide how to make the bioaugmentation of strain NR successful. Model studies show that conventional heterotrophic bacteria in activated sludge always outcompete strain NR. The competition between strain NR and *Nitrosomonas*, a typical ammonium-oxidizing bacterium (AOB), mainly depends on COD concentration and maximum growth rate of *Nitrosomonas*. 2000 mg/L of COD ensures that strain NR is always able to outcompete AOB. A biofilm reactor was

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